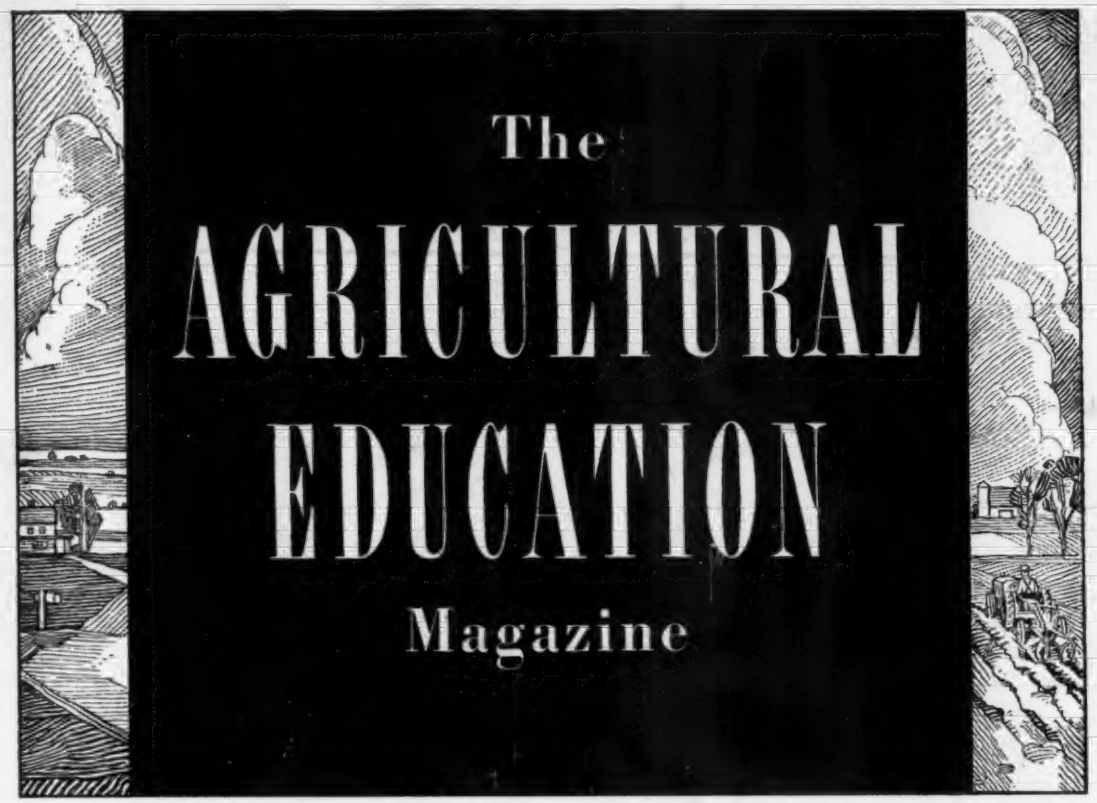
Vol. 11 December, 1938 No. 6



The AGRICULTURAL EDUCATION Magazine

Progress is the activity of today and
the assurance of tomorrow.—Emerson

FUTURE FARMERS OF AMERICA
VOCATIONAL AGRICULTURE
FFA

The Agricultural Education Magazine

A monthly magazine for teachers of agriculture. Managed by an editorial board chosen by the Agricultural Section of the American Vocational Association and published at cost by the Meredith Publishing Company at Des Moines, Iowa.

Subscription price, $1 per year, payable at the office of the Meredith Publishing Company, Des Moines, Iowa. Foreign subscriptions, $1.25. Single copies, 10 cents. In submitting subscriptions, designate by appropriate symbols new subscribers, renewals, and changes in address. Contributions should be sent to the Special Editor, or to the Editor. No advertising is accepted.

Entered as second-class matter, under Act of Congress, March 3, 1879, at the post office, Des Moines, Iowa.

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Editorial Comment

Overlooking and Overlapping

TEACHERS and extension-service men in agriculture sometimes attempt to avoid duplication of service to such an extent that some much-needed service falls between two units. Some individual badly in need of assistance does not get it, usually because both groups are aware of other men who have disagreed as to jurisdiction and have duplicated efforts to serve the same people.

Not all *overlapping* is to be criticized, especially when the two agencies have a plan for co-operation. It is seldom harmful compared with the *overlooking* of service which is seriously needed. Without a co-operative plan, both the *overlooking* and the *overlapping* occur to the discredit of all parties.

Perhaps the greatest temptation comes from a desire to get *credit* for the success in the area. Equally, one is tempted to avoid the situation where the promise of success is very poor. The boy who has good home opportunities, who succeeds well as a 4-H club boy before he is 14 years old, who does excellent work in projects and other activities while in the high school, and who will move along towards success anyway is a tempting bit of publicity; and therefore he often gets too much supervision by persons who wish the credit.

The farm which is scarcely ever solvent, on which supervision brings only the meager fruit of barely avoiding failure, is not too attractive to either group. Yet the critical assistance to prevent downright failure in such cases is much more vital since the previously mentioned individual would probably have succeeded without our assistance. As the measure of the success of a teacher in his classwork is the improvement made by pupils who find progress difficult, so the evidence of success of work in the field lies in the progress of the boy or man who might fail without the assistance of the teacher or the extension agent.

Dean Vivian once defined co-operation as "so to conduct yourself that others may be able to work with you." In our work it calls for a definite understanding as to the part to be done by each person, the end to be sought, and the degree to which common effort, even duplication, may be needed. It likewise calls for the occasional subordination of personal interest and the ignoring of fancied slights. If you are a "lone wolf" try to learn how to hunt with the pack. In our service, most of the friction comes from incompatibility of personalities, which should never be permitted to interfere with the job itself.—F. E. Heald, Massachusetts.

Better Farm Living Standards Thru Adjustment in Vocational Education

DESPITE all that is being attempted to increase the relative income of farming occupations, the various indexes show that little progress is being made. In fact, the great major trend of farm purchasing power generally speaking is once again downward. This condition should challenge every thoughtful leader in the field of vocational education in agriculture. They should attempt to answer the serious question: What can we do to raise the living standards of our patrons and future farmers despite this discouraging trend in farm income? If we cannot, thru our vocational instruction, make more progress toward increasing the relative dollar income and purchasing power of our farmers, how can we help to lift their living standards by readjusting our teaching activities in vocational agriculture?

The American standard of living demands food of a greater variety than found in most any other country. It demands clothing of many types, styles, and designs. It demands shelter with running water, modern plumbing, bath tubs, and many varieties of electrical appliances. It demands leisure and personal liberty to enjoy the worthy fruits of our labor.

How are our rural people and our future farmers to increase their supply of these essentials which measure our modern civilization if they cannot materially increase their dollar income and purchasing power?

It is rather generally accepted that our educational practice farming programs should be built around the family needs of our agricultural students. Under our present conditions it is only logical that a relatively larger amount of productive energy of the farm family should now be devoted to supplying family needs and less to the major farm enterprises for commercial purposes. Above all, exploitive production must and will be checked. Most every farm can grow a much better and larger variety of foods for family consumption, and the agricultural course can be readjusted to train for this end.

In the field of clothing and household economy we can leave the challenge in the hands of our co-workers in home economics.

As to shelter and worthy use of leisure time, our teachers of vocational agriculture can make some rather large course changes which can make major practical contributions toward lifting our rural living standards. In most every instance our vocational farm shops can contribute much practical work in farm carpentry, stone masonry, cement work, simple plumbing, electrical wiring, harness repairing, machinery repairing, auto and tractor mechanics, furniture repairing and even making. Many other types of skill-developing activities can be used to train and fit our present and future farmers to use the natural resources about them for making with their own hands those capital goods and meet the family shelter needs which cost relatively too much for the farm income to supply.

Teachers can survey and measure the living conditions of every farm family in their patronage area, using definite standards. They can equip their vocational agricultural departments and adjust their instructional courses to train for supplying the deficiencies they find. There are many reasons for believing the time has come for swinging more decidedly from commercialized farm production to farm practices designed to meet a well-balanced rural mode of living. The rural vocational high schools should play a large part in making the best of this trend. It is only a few years ago that rural electrification started on its way in Arkansas, yet already most all of our vocational departments are electrified. One vocational-agriculture department in the state has a separate room for electrically driven equipment valued at more than $5,000, and has turned out thousands of dollars of useful articles for local farms and farm homes. Another school board purchased over $600 worth of electric woodworking machines and an advanced farm shop class made more than that amount of necessary school equipment the first year. Three-room vocational-agriculture buildings are becoming common in our state. That third room is for electrically driven machines, which are giving not only practice training for farm youth but making capital goods needed in the living standard of rural people. True, some of these boys will not become farmers, but they are setting up in the rural communities, craft shops, which supply needed articles to farmers at prices less than farmers can pay when these articles come from the crowded, high-cost strike-controlled industrial centers.

"Oh!," say some, "that is regression and will make more unemployment in occupations of the cities." My reply is: I am sorry, but we must preserve as much of our rural living standards as possible. I hope that any industrious city worker can have always the opportunity to return to the soil if necessary. All nature abhors an extreme. The extremes of tariff protection, labor unionism, and other urban organization activities have brought about a malicious economic situation that is crushing both rural and urban society. We cannot always make up the resulting disparity thru increased taxation. When the political and economic dominance of urban institutions prevent even a trend toward parity of agricultural earning and purchasing power, then the law of diminishing returns is brought into active force and the man on the soil must look to his self-preservation as he always has in the past. In nature, self-help and self-reliance finally preserves the desirable and worthy.

The Alpha and Omega of any living standard depends upon production and distribution of those goods and services that are considered an essential part of that living standard. The challenge to realistic leaders in agricultural and rural education is to broaden the field of agriculture to meet more of the practical needs of rural living standards in order to train rural people to produce and distribute more of those essentials things needed in the rural communities and on the farms.—R. B. Smith, Arkansas.

A. K. GETMAN **Professional** R. W. GREGORY

Contributions of Leading Americans to Agriculture—Cyril George Hopkins—1866-1919

B. C. LAWSON, Associate Professor Agricultural Education, Purdue University, Lafayette, Indiana

A REVIEW of the life and achievements of Doctor Cyril George Hopkins seems to be particularly appropriate at this time. Just 20 years ago this fall he received a call to Greece to help with the rehabilitation of soils which had been farmed thousands of years. The mission was not without dangers. The world was at war, and malaria was prevalent in some of the districts where his work might take him. But so great was Doctor Hopkins's belief in the power of science to benefit agriculture, and so deep was his interest in the welfare of man, that he did not hesitate to accept the call.

B. C. Lawson

His thoro and systematic methods of investigation, his ability to make practical application of his findings, and his kindly pleasant manner, won for him the confidence and admiration of peasants and statesmen alike. The Greek Government showed its appreciation of his services by conferring upon him its highest and rarely bestowed decoration —the Order of Our Savior. Unfortunately, however, the call to Greece led in the end to his death.

Teachers of agriculture today, even as the people of Greece two decades ago, can gain inspiration and practical help from the life and writings of Doctor Hopkins. He was a "scientist of the highest order and a benefactor to mankind; a firm friend and a courteous Christian gentleman."

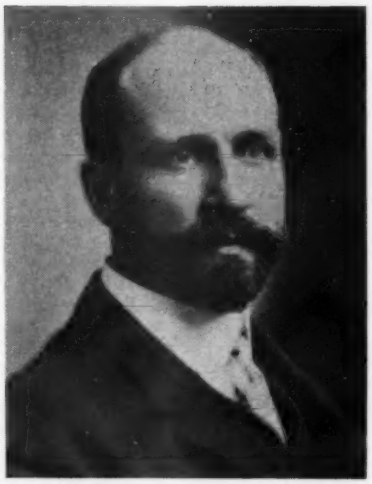
Cyril G. Hopkins, one of a family of nine children, was born near Chatfield, Minnesota, July 22, 1866. The family later moved to Deuel County, Dakota Territory, where young Hopkins grew to manhood. He earned money for his college course by teaching in country schools. His vacations were spent working on his father's farm.

In 1890, he was graduated from South Dakota Agricultural College at Brookings. Soon after graduation he was appointed Assistant in Agricultural Chemistry at his Alma Mater. He held this position for two years before going to Cornell to serve one year, 1892-1893, in the field of agricultural chemistry. Upon his return to Brookings, he was appointed Acting Professor of Pharmacy. In May, 1893, he married Emma Stelter of Brookings.

Doctor Hopkins received his master's degree from Cornell in 1894, the same year that he was appointed Chemist of the Agricultural Experiment Station at the University of Illinois. He accepted the new position with the understanding that provision would be made for him to secure leave of absence to continue his graduate studies. At two different times he returned to Cornell, where, in 1898, he completed his work for his doctorate.

His doctors' thesis, "The Chemistry of the Corn Kernel," went more completely into the composition of the corn kernel than any other work had done; and it furnished the basis for significant experiments in plant breeding.

He spent the year 1899-1900 studying and traveling in Europe, devoting most



Cyril George Hopkins

of his time to agricultural chemistry at the University of Gottingen. While there, he was offered by cable, and accepted, the position of Professor of Soil Fertility and head of the newly organized Department of Agronomy at the University of Illinois. He held this position the rest of his life. In 1903 he was appointed Vice-Director of the Agricultural Experiment Station.

After his return from study and travel abroad, Doctor Hopkins became more and more occupied with problems and investigations concerning soil fertility. During this period, too, more than 150 publications came from his pen. Among them were: "The Illinois System of Permanent Fertility," "Soil Fertility and Permanent Agriculture," (a textbook), "The Farm That Won't Wear Out," and "The Story of the Soil," (a novel).

Doctor Hopkins's work in soil fertility and permanent agriculture attracted world-wide attention. It is not strange then, that he should have received the call to Greece in 1918. It is only unfortunate that in answering it, he sacrificed his life. Just a few days after sailing for home, he became ill, the victim of malaria, which he must somehow have contracted in his trips thru Greece. He was transferred to the British Military Hospital at Gibraltar; and it was there that he died, October 6, 1919.

Doctor Hopkins has been referred to as an "evangelist preaching the gospel of soil fertility and permanent agriculture." Certainly, he neglected no opportunity to point out the inevitable price a nation must pay for destroying, instead of preserving, the soil. But he did more than this. With the patience and thoroness which marks the man of science, he began a search for a system of farming which would be at once practicable, profitable, and permanent for all farmers. His training in chemistry enabled him to view agriculture with the eyes and mind of a scientist. His years on the farm gave him the farmer's desire for practical ways of solving soil problems.

The result of his efforts was "The Illinois System of Permanent Fertility," a system for which he did not take full credit. When asked to discuss the system before a group at a farmer's institute, he very modestly spoke as follows:

"Many have contributed to the development of this system, including both able investigators in other states and countries, my own colleagues in the investigation of Illinois soils, and the truly scientific farmers of this state. . . .

"An important part of the work performed in Illinois has consisted in assembling the facts the world affords and cementing these into concrete forms which serve as a firm foundation upon which to build systems of permanent agriculture."[1]

Only brief mention can be made of essential factors underlying the Illinois system of permanent agriculture as developed by Doctor Hopkins. Six positive factors of crop production were recognized: seed, temperature, moisture, light, a home for the plant, and certain essential plant food elements for its use.

Doctor Hopkins gave special attention to the plant food elements and seems to have reasoned somewhat as follows: for any system of farming to be permanent and profitable, the materials removed from the soil by cropping

plus that lost in the drainage water, must be returned to it in amounts equal to or in excess of the amount removed by these natural processes.

By the use of scientific methods, he determined the amounts of the essential plant food elements in the soils of Illinois. By applying these same scientific methods, he discovered the amounts of food elements removed by farming and the means of supplying those elements likely to be inadequate for profitable farming. "Systems of permanent agriculture," he said, "must be based upon facts and not upon opinions."[2] At another time he said:

"Progress in agriculture demands that to the greatest possible extent practice shall be controlled by science, not by chemistry alone but by every science that deals with principles fundamental to agriculture."[3]

Doctor Hopkins had a strong belief in the usefulness of chemistry as a means of studying agricultural problems. It is not surprising, therefore, that he instituted a system of chemical analysis of soils to help farmers understand the composition of their soils.

In addition to the soil analysis program, Doctor Hopkins directed the establishment in Illinois of a series of experiment fields for the purpose of further investigating the problems of soil fertility. The experimental fields were located in different parts of the state, in order to study fertility problems in respect to all the more important types of soils in the state. These fields also served to demonstrate methods of establishing and maintaining productive soils.

Another activity which Doctor Hopkins began in connection with his study of fertility problems, was a survey of all the soils in Illinois. Soil maps were made of the different areas which enabled the farmer to find out the types of soils on his farm, or on other farms.

In order to demonstrate the practicability of his theories in matters of soil fertility, Doctor Hopkins became a practical farmer. In 1903, he purchased an almost barren piece of land in southern Illinois, which he named Poorland Farm. One forty had been abandoned agriculturally for four years. Sympathetic interests offered him free fertilizers, also money, but he kindly refused even free manure from neighbors. He told his friends, "I am not going to develop Poorland Farm at the expense of neighboring farms, nor am I going to do anything that cannot be done upon any farm in the district."[4] In 1913, the "worthless" forty yielded 1,320 bushels of wheat. It was at this time that he wrote "Bread From Stones,"[5] and those who had viewed the project with skepticism had to concede that there must be some practical value in his theories.

Doctor Hopkins's work in soil fertility overshadows his other scientific achievements, but these other achievements should not be entirely overlooked. Among his first studies was that of the composition and digestibility of corn ensilage, cowpea ensilage, soja bean ensilage, and corn fodder. A little later he investigated the possibility of sugar beet production in Illinois. He invented a limestone tester which he did not patent but offered to the public "for the service it may render in helping to place American agriculture on a more scientific and profitable basis."

One of the qualities which made Doctor Hopkins stand out from many of his contemporaries in science, was his remarkable ability to interpret or translate his scientific findings into words which the farmer and the average man could understand. He has sometimes been called a "middleman in science," for he seemed to possess a "genius for popularizing science without distorting it."

He was not only a scientist and a practical farmer, but also an inspiring teacher. " . . . his ability as a teacher both in the classroom and in the agricultural press was exceptional."[6] From the president of the University of South Dakota came the comment:

"As a teacher and an inspirer of young people, he had no superior, and as a man, a *gentle* man, deeply interested in the personal problems of his pupils and filled with the spirit of serving them and helping them surmount their difficulties, I doubt whether he had an equal. I have heard many of his former pupils speak of him with the greatest reverence and affection."[7]

When reviewing the various achievements of Doctor Hopkins, it would be unfortunate, indeed, if one were to neglect to comment upon the character of the man. What did those who knew him think of him as a man?

Doctor George Bouyoucos, Captain in the American Red Cross Commission to Greece, a friend and former student of Doctor Hopkins who went with him to Greece to study the soils, wrote:

"Doctor Hopkins was a modest, unselfish, and democratic man. The Greek Government offered to set aside a special car for him to travel in, and the municipal authorities in the different cities of Greece requested the Government to notify them what day Doctor Hopkins would arrive at their respective cities so that they could receive him officially and entertain and honor him. Doctor Hopkins, however, always declined these and similar offers. He would go quietly into a region, do his work, and when he was ready to leave he would go and pay respect to the mayor or governor and then depart.

"He always followed and practiced the motto never to do anything that he could not honestly justify. The people of Greece admired him, loved him, idolized him, and worshipped him. They thought that he was not a man, but a god and a saint."[8]

Doctor Davenport, Dean of his own college, said of him:

"Doctor Hopkins had but one purpose in life, and that was service, particularly along the lines in which he had special training. . . . He gave liberally to worthy enterprises, and from a young man tithed all his earnings: one tenth went regularly to the Lord. . . ."[9]

The force of Doctor Hopkins's personality was felt beyond the circle of those within his own immediate field of work. E. S. Bayard, Editor of National Stockman and Farmer, admired him as a man.

"Great as were his achievements in his chosen field, and their effects will be felt for generations, still to us he was greater as a man than as a scientist."[10]

President Kinley of his University was impressed by the spirit of service as shown by Doctor Hopkins's career. He said:

"As a servant of the people, he was a teacher and an investigator. In his research work he subordinated his own gain to the love of his work and the good he was trying to do. Undoubtedly he could have made a large income if he had been willing to put his talents at the service of private individuals or corporations, but he thought of the good of the community. His fellow citizens were dear to him; he wanted them to live well; he wanted the next generation to enjoy the benefit of the natural wealth that God has given this generation. To that end he sacrificed his personal ambition so far as that might have been gratified by fortune."[11]

It is not easy to evaluate or interpret the life and work of Doctor Hopkins. He possessed a rare combination of characteristics. He was a scientist, a practical farmer, and an inspiring teacher, as well as a humanitarian. Probably he will be remembered chiefly for his work in the field of soil fertility. Doctor Robert Stewart, one of his colleagues, said of Doctor Hopkins's contribution to agriculture:

"The great contribution made to American agriculture by the late Doctor Hopkins was the gathering together, classifying, interpreting, and unifying, by his own investigations, the known facts of agriculture into a definite whole as practiced and taught by him in a system of permanent soil fertility."[12]

However, for Doctor Hopkins, the development of a permanent agriculture was but a means to another end. This end was a rich and satisfying life for all mankind. He believed that the basis for this enriched life was a permanent system of soil fertility, and he devoted most of his strength and energy to this end. He wrote:

"While manhood and womanhood of high moral character and strong intellectual power constitute the attainment desired, it is also true that the possibility of this attainment depends in part upon material prosperity. Poverty does not build, equip, and man consolidated high schools in country districts. The general intelligence and wide-spread education of the American people are the result and the cause of the future prosperity of our people.

"The foundation for Illinois prosperity is her soil, and the future prosperity, educational advantages, and general intelligence of her people will depend in large measure upon the improvement and preservation of the soil."[13]

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(Continued on page 118)

A. M. FIELD

Methods

History Is in the Making

WILLIAM SHERMAN, Teacher,
Albion, New York

ON JULY 1, 1918, the history of vocational agriculture was born, for on that date the National Vocational Act for Education (Smith-Hughes), which had been voted on and passed by congress the previous year, went into effect.

We will celebrate our twentieth birthday of having Federal aid for high-school agriculture departments this July. Twenty years is not a very long time when we think of education, and yet it is a long time when we remember the changes which have taken place in agriculture courses in our high schools.

There were approximately 18,000 pupils enrolled in all-day classes in agriculture back in 1918. That number has increased to approximately 143,000 young men in 1937. History is being made by these young men. We are the pioneers. It is our job to see that that history is recorded accurately and passed on to future generations. It is just as important to know the history of agricultural education as it is for our young farmers to know the details of the battle of Gettysburg.

Teachers often ask the question, "What should a history of my department contain"? There are certain fundamental facts that should be contained in every history. These facts can be enlarged upon as new material comes to light. A good history always has room for additions. The most pleasant bit of research that this writer has ever done was locating all of the materials for the history of our own department.

Some of the fundamental facts that I considered when writing our history, and facts that every department should look for were: 1, year the department was started in the school; 2, type of instruction offered; 3, salary of the teacher; 4, professional training of the teacher; 5, teaching schedule of the instructor; 6, courses offered in agriculture; 7, size of the department; 8, equipment; 9, textbooks and bulletins used; and 10, the objectives of the courses in agriculture at that time. All of this material is on file in the office of your school superintendent or principal. Most schools print annual school catalogs which give accounts of the courses offered with an explanation of these. From these catalogs it is rather a simple task to find the material for which you are looking. At the same time, you will find it a most interesting job, especially where the catalogs are detailed.

From the material at hand we can make a study of the records to determine when, and for what reasons, certain changes have been made. You should be able to determine from the records when the type of instruction was changed from the vertical to the horizontal type. You can determine what courses were offered each year with the enrollment in each class; the number dropping out; the professional qualifications of each teacher; the books, charts, and bulletins used; equipment available; and the classroom space. I found that our own department was started as a one-year course that met three days a week. That was back in 1908. In those days biology was required as a pre-requisite to this one-year agriculture course. Finally in 1916 agriculture was offered for the first time in our school as a four-year course leading to a vocational diploma. The department has grown from 15 to 60 boys during that time.

Some of the older residents and teachers are an excellent source of information for some of the facts concerning agriculture in its beginning in your high school. In our own department we found from some of these people how often field and judging trips were taken and how the "Ag" courses compared with other courses in the school at that time. We had an increase in enrollment from 43 to 64 in "Ag" in 1935. By inquiring, I found that we had increased our patronage area by several miles, and that at the same time the teacher gave a talk to all of the rural boys in the school urging them to enroll in the course.

Another item that is important in any history is the organization of the F. F. A. chapter in your school. The first evidence of an organized group of this kind was at Endicott in 1920. It was not until 1926 that the state association was formed by Endicott and Albion Chapters. The F. F. A. program should be well developed each year and a copy of it, with the changes made, included in your history from year to year. Such material is not only valuable to you, but it is of large value to the club in making out its yearly program.

By checking thru the permanent record cards in the office you can determine the years of agriculture taken by every boy who has ever enrolled since the department was started. You can also determine his high-school average. From these records you can send out a form letter and find out just what these boys have been doing since they left school. A summary of this survey should be included in your history.

In our own department we have on file the project record summaries for the past ten years. A very interesting summary was made of these records which provides excellent material for project planning in classes. A summary of this would not be out of place in a good history. Investments in projects, life insurance, and money in the bank, makes interesting material for future reference when recorded year by year.

The degrees held by past and present members of your club add to any history. I have wondered what school in this state claims the most American and Empire Farmers.

Your own school can provide most of the information needed for your history. Your district superintendent can supply some of this material, and the State Education Department is always willing to provide technical data concerning your department.

Let us take time out soon, if we have not already done so, and write down the facts about our department, bringing it up to the present. Then once a year, add to that material. Keep it up to date so that if we move on to another school, or leave the teaching field, we can leave behind for our successor a worth-while bit of information to which he can add each year. We teachers are fortunate in that we are working in a fairly new field that has a long, bright road ahead. Let us not dim that road by shirking our responsibility to our profession.

Utilizing an Opportunity for Trainees

FRED T. ULLRICH, Director,
Platteville, Wisconsin

WHEN the representatives of the National Youth Administration in Wisconsin suggested that the State Teachers College at Platteville, Wisconsin, establish a Junior Farm School, the problem of a teaching staff for the students in the school presented itself. After learning that only those students were to be selected who had dedicated themselves to the occupation of farming, an opportunity was seen to give the seniors in agricultural education additional teaching experience. All seniors are required to teach for two semesters in the department of vocational agriculture in the local high school (Platteville, Wisconsin). This department is the teacher-training center for students preparing to teach vocational agriculture.

A brief explanation of the selection of students, the organization and maintenance of the Junior Farm School, will be helpful to appreciate the responsibilities of the trainees in teaching these students. The 23 students were selected by the county agricultural agents, instructors in vocational agriculture from the county in which the college is located, and three others that are contiguous. In the selection of the students the county agricultural agents and teachers of vocational agriculture were guided by certain criteria. Among these, as already mentioned, was the fact that those in the school were either established as farmers or in the process of being progressively established as farmers, at least 18 years old, and with one or more years of high-school education. A study of the young men enrolled showed that 19 were high-school graduates, and four were only eighth-grade graduates. These young men maintained themselves on a co-operative basis under the direction of a supervisor appointed by the National Youth Administration. Each young man was permitted to work at manual labor as much as 55 hours every month. If he worked the full allotted time he earned $25 a month. Each

student upon entrance expressed the willingness to pay his proportionate share of cost for tuition, board, room, and other incidentals. Reference will be made later to the manual work of these students because much of it also was educational in character.

In the educational program for these students, a relatively large number of units was chosen, to give opportunity to make some selection. As a rule each unit consists of 18 lessons, two lessons a week for a period of nine weeks. The units have the following titles; English, farm accounts, livestock feeding, livestock sanitation, soils and fertilizers, dairy herd improvement, co-operative marketing, farm management, conservation, farm poultry, and horticulture and vegetable gardening. A period was provided once a week for group singing. Also, all students devote two periods a week to basketball. The students were entitled to all the services of the college that were offered to the regular students.

In the arrangement of the teaching of this group by seniors in agricultural education, the 23 students were divided into two sections. In a number of instances, two trainees taught the same unit but have different sections.

After a trainee was assigned the unit to teach, he was asked to consult the instructor in the technical subject matter courses in the college in whose subjects the unit to be taught is a part, for guidance as to what to emphasize with these students and how to break the unit into 18 lessons. The trainees were required to submit these analyses to the director of agricultural education for final approval. They were also required to select the textbooks, bulletins, and other publications to be used by the students. The supervision of these trainees has been apportioned among the staff of instructors in the department of agricultural education, including the instructor in vocational agriculture in the local high school with whom the trainees in agricultural education did their practice teaching in the day school. All of the instructors in the Teachers College are expected to know good teaching, and therefore are qualified to supervise the instruction. No attempt will be made to explain the items in the technique of this supervision. It must suffice to say that they included the organization of subject matter, lesson planning, the use of objective material, the assignment of lessons, the best methods of teaching, the proper use of questions and evaluation of answers by students, the improvement of the students' English, anticipation and disposition of problems of discipline, the voice and the manner of the teacher, etc.

One of the criticisms that may be made of this arrangement for participation of trainees, is that there is no provision for practice in the supervised practice of these students. While some of this criticism must stand, the trainees did supervise the improved practices and skills which the junior farm school students performed on the college farms as a part of their manual labor. Some of these practices and skills, selected at random, are the operation of a milking machine, the clipping of dairy cattle about the legs and udders to assist in sanitary milk production, the disinfection of hog house and sows before farrowing, jobs in poultry management, the breaking of a colt, repairing of farm machinery, the mixing of rations for the dairy herd and the poultry flock, the construction and operation of a hotbed, road construction, planting of willows to protect bank against erosion, grooming of cows and calves, grading and cleaning barley and oats before seeding, fitting of farm machinery for spring work, repair of fences, conditioning of pens in sheep fold before lambing, shearing of sheep, etc.

While the conditions for teaching a junior farm school group are somewhat different from such a school under a teacher of vocational agriculture, it is maintained that the trainees did receive valuable training and experience that will be of great assistance when they have to face the junior farm school as teachers of vocational agriculture.

Efficient Use of Time in Teaching

R. B. JEPPSON, State Supervisor,
Carson City, Nevada

THERE are no two vocational agriculture teachers who will follow the identical procedure, use the same methods, or employ the same devices in conducting a class altho they may be dealing with the same teaching unit. This is to be expected, as each teacher has a different personality which influences to a large degree his success as a teacher and his methods of teaching. Also, each group of boys will be different.

There is one thing, however, which every teacher must continuously keep in mind and that is the efficient use of instructional time. The question each teacher should ask is, "How can I plan my work today so as to utilize the available time in the most efficient manner"? In observing the instructional work of vocational agriculture teachers for several years, I find that some can accomplish a great deal more than others during the regular class time, and I shall attempt to point out some reasons why they are able to use the time more efficiently and thereby get better results.

The better teacher first develops a plan to follow which enables him to think thru the job he is going to teach and how he is going to teach it. He must know the local farming situations as they pertain to the particular job to be taught —let us say—"Providing proper housing for laying hens." He must have a clear-cut understanding of local farm practices, the experiences of the boys in the class who are to study the job, and the needs of each individual. If the situations show that there is a need for teaching this job, then the next step for the teacher is to determine his objectives. He lists these objectives in a definite manner. Objectives may include developing the right attitude of boys toward the new job; developing an appreciation of good housing for poultry; development of skill in building, remodeling and improving the poultry house at home, and having every boy acquire the knowledge and information about fundamental principles of good housing which will make it possible to increase or maintain high egg production.

In the next step in his plan, the teacher includes the things he is going to do in getting the boys to see and realize it is an important problem worth studying and worth doing in order for them to become successful poultrymen. This is known as the preparation step in teaching and it is here that the teacher develops the proper attitude and appreciation, and secures the interest of the students. In the plan the teacher indicates the activities he will use, such as questioning about local poultry housing situations, use of illustrative material to show contrasts between poultry buildings, and reference to needs arising in projects. He knows that interest is one of the primary laws of learning and this must be carried over into the other steps in the teaching process which are to follow.

His next step in the preparation of his plan is to outline just how he expects to present the new pattern of learning to the members of his class. In the presentation step he must be very definite and try to develop some constructive thinking by the boys. Analyzing the job with the class is used by successful teachers. Developing an outline of problems dealing with the job and using these problems for study and discussion is also used to good advantage by successful teachers. He develops a survey form for the purpose of having the class secure data and information about poultry houses on home farms and other farms; he makes plans for going to different farms to study types of poultry houses; he provides adequate reference material in order that students can secure knowledge and information about fundamental principles necessary in housing laying hens; provision is made for supervised study of reference material followed by discussions of the information and data secured from surveys and farm studies.

The next part of his plan takes care of the application step in the teaching process and this is a crucial point, if he is to reach the objective of having the boys develop skill by actually doing something about it. It is here he arranges to have the boys prepare definite plans for either building, remodeling or improving the poultry house for their projects, or as supplementary farm training on the home farm. Provision is made for each boy to determine what should be done in his particular situation, how it will be done, when he will do it, why he plans to do it that way, and, in some cases, estimated costs.

The successful teacher's plan for the testing step includes checking individual plans for doing the job, short objective test to determine whether the boys have acquired the essential knowledge about the job, usually thru a well-planned new-type test, and finally the observation of the student actually doing the job and results obtained after completion.

Thru definite planning and organization of the work to be covered in the teaching of this job, the instructor is able to secure greater interest, utilize the time efficiently, and attain his objectives.

After each teaching unit is completed, the teacher should take a few minutes to analyze the methods, procedures, and devices he used in the different phases of his teaching. The progressive and successful teacher resorts to *self-analysis* and *self-criticism* for the purpose of securing *self-improvement* in his work from day to day.

Supervised Practice

H. H. GIBSON

Enriching Student Experience on Practice

JAMES F. GALLANT, Teacher,
Essex County Agricultural School,
Hathorne, Massachusetts

ONE of the finest compliments which can be given to an instructor in the service of vocational-agriculture education, is that he is training his boys to "think straight." Fortunately for us, our field is rich in opportunities for such training, and, as would be expected, the men in our service are missionaries of the scientific method. Yet with our immediate objectives usually aimed at the execution of managerial and operative jobs with skill and efficiency, we seldom realize the significance of our influence for developing the scientific attitude. Consequently, we overlook many of the marvelous possibilities we have for extending this influence.

It is the opinion of the writer that we can, and should, give greater emphasis in our teaching to the development of those habits of investigation and procedure which are fundamental to the scientific attitude. This emphasis should be given not only in school, but also during the supervised practice periods out of school. On practice, the art of agriculture (the doing of things) is stressed as it should be; whereas the science of agriculture (the why of things) is too often neglected on practice by most instructors. We should never forget that the farm, and in a broader sense the rural atmosphere, is a natural laboratory which presents real opportunities for the development of the scientific attitude. By capitalizing on these natural opportunities, students will acquire desirable habits and a broader understanding of the ways of Nature and of man's adaptations of physical and biological principles.

Learning by Example

In promoting science education on the job, let us first consider the application of a fundamental principle of child psychology: The youngster learns by imitation. An instructor's habits, as expressed when he is in action, reflect his scientific attitude. Therefore, it is axiomatic that the instructor must follow scientific habits of investigation and procedure if he is to stimulate the development of these habits in students. The old proverb, "Practice what you preach," has lost none of its significance. Let us set a good example.

Scientific Instruction on the Job

All instructors teach science on the job, only some are teaching considerably more than others. The common method is thru suggestion. The boy's attention is called to things he has not observed or recorded, and *"why"* questions are asked. In many instances these questions are left open for further consideration. Scientific aspects of present problems are discussed and new or follow-up problems, which are soon to be encountered, are suggested. This emphasis on scientific relationships stimulates a boy's enthusiasm for first-hand investigation, and it supports and lights up the art of agriculture. Such guidance is characteristic of successful teachers.

The Notebook Habit

The agriculture instructor is constantly being asked questions like this one: "My peas are in bloom; when will they be ready for the first picking?" This is a practical question and one which can be easily answered by giving the desired information. Yet is it not true that the same boys ask the same questions year after year? Would it not be better to guide a boy in such a way that he would discover this information for himself and have it on record where he could use it in future years? Such a form could carry information headings such as: kind of crop, variety, source of seed, date planted or set, date well up, days to come up, date began blooming, date of first harvest, days from planting to harvest, days from bloom to harvest, date last harvest, length of harvest period, first price, and comment. Altho set up primarily for vegetables, this form can be modified for small or large fruit and field crops. Adaptations of this same technique can be applied to livestock and poultry production.

Boys should be trained to record systematically information which will be useful in the future. This information should be classified under separate headings in a permanent notebook. Consider the value, to a young man engaged in farming, of a record of last killing frost dates extending back over a period of at least five years. This information will be invaluable to him when planning his cropping dates and sequence of plantings during the season. Many boys can profit by recording the following observations: Date of foliage appearance on trees and shrubs; date of bloom of trees, shrubs, annuals, perennials, wild flowers, grasses, and legumes; date of appearance of wild flowers, weeds, and birds; date of appearance of insects and diseases on plants; extent of pest damage and effectiveness of control measures; etc.

Most students, when properly motivated and adequately supervised, will develop the notebook habit. Furthermore, they can and will organize their own notebooks in preparation for the supervised practice period. Students will discover that observations and other data, when accurately recorded and properly classified, will be a scientific treasure house which can be used and added to in future years.

Urge your boys to start the notebook habit. Then follow up with a regular inspection of their science notes when visiting the boys, just as you do with the project records. The notebook habit eliminates guesswork, encourages observation, and develops scientific methods of procedure.

Summer Science Ticklers

Have you ever considered the possibility of giving your students a list of questions which stress timely and intelligent thinking on observations which can be made during a given period? Mr. Franklin E. Heald, Teacher-Trainer of Vocational Agricultural Education in Massachusetts, followed such a practice as early as 1909. At the Essex County Agricultural School, Summer Science Tickler letters have been sent to students each month from May to September for the last 15 years. The questions in these letters cover a broad field, suggesting many observations which could not possibly be covered during the supervisory visits. Furthermore, they supplement the observations stressed during these visits. A boy is not expected to answer the questions, and it is not assumed that he will be interested in all the questions; however, they accomplish their purpose if the boy can find one or more questions which will stimulate his interest in making observations and thinking thru the suggested relationships. Twelve to 15 questions are listed on each monthly sheet. Some of the typical questions which appeared on letters sent out in 1937 follow:

May:

You will be interested in determining the percentage of blossoms on the apple, pear, peach, etc., which set fruit. Try it!

Have you observed the damage done by the spruce gall aphid? Locate places where new galls are being formed. How would you control this pest?

Whenever possible, destroy the nests formed by apple-tree tent caterpillars. Is this the best season and simplest way to control this pest? How does Nature limit their numbers?

June:

Prepare for next year's bloom by June pruning of spring-flowering shrubs. Why can next year's bloom be increased by pruning now rather than in the fall?

Gardeners are now starting to pinch back the leaders on many of the annual plants they are growing. Do you know which annuals should be pinched? What are the results obtained by pinching? Why should plants be pinched early in the morning?

Nicotine sulphate applied twice weekly during the first two weeks of June will kill young oyster-shell scales. On what trees do you find this pest? Why is this pest so difficult to control at other seasons of the year?

Notice that the attempt has been made to frame these questions so that they will be informal and interesting, and that in some instances leading information has been given. The type of observations requested are those which can be conducted without considerable effort when the boy is working in the field, going to and from work, or during his leisure hours.

These letters are issued by the science department in this particular school; however the writer knows of similar letters prepared and issued during the summer months by at least two

other agriculture instructors in Massachusetts. When mimeographing is impossible, there is always the hectograph. Such an outfit is inexpensive and surprisingly efficient.

Summer Science Tickler letters will help to broaden the horizon of our students who will be the farmers of tomorrow.

One-Idea Letters

Within recent years a summer science teaching technique has been developed at the Essex County Agricultural School. This technique, a letter, features a specific practice or job, gives the up-to-date recommendations, and presents a set of science questions which can be answered by thinking thru the observations made in the doing of the job. It is generally conceded to be true that when most boys do a necessary job or follow a definite program of work, they see only the work involved and seldom give much thought to radiating relationships or underlying facts and principles. With this new instructional procedure, considerable progress has been made in replacing this attitude of seeing only the work involved, with a new attitude in which students are developing the habit of seeking out the underlying facts and principles of the job thru observation and intelligent thinking.

Figure I, one-idea letters. In 1937, 47 of these letters were sent to students of the Essex County Agricultural School during the supervised practice period—May 1 to October 1. They featured practices in the fields of vegetable gardening, fruit, floriculture, ornamental horticulture, field crops, dairying, and poultry.

Figure I illustrates the general set-up of these letters. It will be observed that an attempt has been made to have each letter conform with the principles of advertising and salesmanship. Notice that this has been done thru the use of "catchy" leading words and phrases, diagrams, style of lettering, and "change of pace" in lettering and design. Students like these letters, and the great majority of our 190 students file the letters they receive in special notebooks.

We present here in detail the featured letter shown in Figure I "Chlorophyll Hunters."

This letter conforms, with modifications, to the general technique, namely; an observational practice, specific control recommendations, and a set of observational questions which can be easily answered by thinking thru the observations made in studying and controlling the pest.

Chlorophyll Hunters - - - Death-Carriers

That's What Leaf-hoppers Are

OBSERVE

What they have done to the chlorophyll in the foliage of roses, asters, grapes, raspberries, privets, and other plants.

REMEMBER

That they carry such virus diseases as aster yellows, peach yellows, and raspberry mosaic. They are also suspected of carrying many other mosiac diseases on a wide range of plants.

CONTROL

On ornamentals use one teaspoon Nicotine Sulphate and an inch cube of soap to a gallon of water. This material can be added to 4-4-50 Bordeaux for increased effectiveness as Bordeaux tends to repel the pests. Rotenone or Derris preparations may be used according to the manufacturer's directions. Apply your choice of spraying or dusting material to the underside of the leaves with an angle nozzle.

DO YOU KNOW

1. Why many aster growers use a special cloth to enclose growing plants?
2. Why arsenate of lead is not used in the control of these pests?
3. Why an infested plant, even if it does not lose its foliage, will develop very slowly?
4. Why it is not necessary to provide a special spray for leaf-hoppers on apples, even tho this tree is a favorite food plant?
5. How to distinguish leaf-hoppers and their damage from aphids and their damage?
6. In how many ways the leaf-hopper nymph differs from the adult?

Instructors at the Essex County Agricultural School are convinced that this technique promotes; first, a more favorable student reaction to recommended agricultural practices; and second, the habit of seeking out the underlying facts and principles of the job thru observation and intelligent thinking. Students at this same school have indicated in questionnaires for the past two years that these letters are very helpful and that they want more letters with entirely new material.

Perhaps you have had the thought that this technique would be just the thing for your boys—if you had a cooperating science teacher prepare the letters for you. Assuming that you have not such an asset, this technique is still worthy of your consideration. Would it not be possible and convenient for you to prepare just a few letters each year? Such a program, consistently followed over a period of years, will give you a great variety of these letters, which you can distribute by mail or in person. You will not find these letters especially difficult. Extension folks, county agents in particular, have used the basic elements of this technique for years.

Student Appreciation

A summer science program, built around one or more of the specialized techniques discussed in this article, can be evaluated by studying student response. As an example, Leavitt E. Moulton of Beverly entered the Essex County Agricultural School in 1935 at the age of 25. This young man was then the superintendent of a beautiful estate owned by Arthur S. Hobson, Jr., of Beverly. Mr. Hobson encouraged this young man to enter the school and since his enrollment as a day student he has continued as estate superintendent, supervising the activities of three employees, even during the six months of the year when he is in school. He is serious minded, an excellent student, and everything he does is in line with a definite purpose. He expressed his reactions as to the value of summer science as follows:

"As a result of my summer science participation, I have learned to be more observant; and by looking for those things to which one does not ordinarily pay much attention, I have found that in many cases these are the things which often turn out to be the important factors in carrying out one's daily program more successfully.

"I must admit that by keeping up to date with my summer science I find that I am more valuable to my employer; my work is more complete; quicker results are obtained in a more satisfactory manner; spare time is not wasted, but instead is put to good use; I am better qualified to direct my employees, and can give an explanation of the source of trouble, thus giving them a keener interest in their work. Being able to answer questions of my employer about different troubles, and giving him a satisfactory answer is alone a large factor in his mind in showing the interest and ability I have. I am more alert, and last but not least, up to date and ahead of my troubles."[1]

A summer science program is right in line with our vocational objectives. Students like to see beyond the end of a hoe, and the opportunity to participate in a summer science program, which can be given by agriculture instructors, will enable them to enrich their experience and to further develop the habit of "straight thinking."

[1] Mr. Hobson and his agricultural instructors feel that Leavitt Moulton has not overstated the benefits he has derived from participation in the summer science program.

Money From Pigs

THERE is no question but what Warner Owens, a member of the Tempe, Arizona, chapter of the Future Farmers of America, believes that vocational agriculture helps one to get started in a paying farm enterprise. The story of Warner's project as told in his own words will testify to the above statement.

"This is the second year I have been in the F.F.A. When I started two years ago, I had one bred Hampshire gilt 8 months old, and one Hampshire boar 2 months old. I purchased these animals from George P. Lillard of Arlington, Texas, and I have the registration papers on both of them. The cost of these two animals was $75.00.

"The sow farrowed 8 pigs, Feb. 23, 1937, but raised only 5 of them. I sold these for pork because they had been sick and I didn't want to keep them for breeding purposes. I bred my sow to the boar I had, and on Oct. 25, 1937, she farrowed 9 pigs and raised all of them. There were five boars and four sows. When the year ended I had a profit of $100 counting the increase in the stock I had on hand.

"During the second year I sold three of the boars, of the second litter, for breeding purposes and the runt to my father for a feeder pig. My father also bought three of the gilts so I have left from the second litter one boar pig, which I will try to sell, and one gilt, which I will keep as a brood sow. In the meantime, my first sow farrowed 15 pigs

on March 23, 1938. She raised 12 of these which I intend to feed out for market pigs."

The above story is proof that a good business in hog raising is on the way, and by the end of his high-school work Warner will no doubt either have a fine business started, or will have sufficient funds from his project to carry him a long way thru college. While talking with Warner at one time he said, "You know, there sure is money in raising hogs if you feed them and look after them in the right way."—Ted Kortsen, State F.F.A. Reporter, Tempe, Arizona.

Value of Supervised Farm Practice Work

N. H. BAULCH, Teacher,
Westmoreland, Tennessee

N. H. Baulch

IN MAKING a study of vocational agriculture in the Westmoreland Community (Sumner County, Tennessee) from July 1, 1931, to June 30, 1936, for partial requirements for a Master's degree at the University of Tennessee, some very interesting things were discovered in connection with the supervised farm practice work of the boys. It is the purpose of this article to pass this information on to others that it might be of service to them.

In making a study of the supervised farm practice program of all vocational agriculture students in the Westmoreland High School, regardless of the number of years enrolled or the class of program conducted, it was shown that the number of boys completing projects (See Table I) increased each year with the exception of 1933–34 when there was a slight decrease due to a small enrollment in 1932–33. The number of projects completed increased every year with the exception of 1933–34, because of the small number of boys completing projects that year. The number of projects completed per boy increased each year up to 1935–36 when there was a slight decrease caused by several failing to get their tobacco out because of dry weather. In 1931–32 there were 1.6 projects per boy; this gradually increased until in 1934–35 there were 4.2 projects per boy. The number of projects dropped to 3.3 projects per boy in 1935–36 because of dry weather. The total labor income[1] increased from $817.97 in 1931–32 to $4,254.05 in 1935–36, which was an increase of over 500 percent. The total labor income per boy increased from $27.26 in 1931–32 to $90.55 in 1934–35, which was an increase of over 300 percent. The total labor income per boy decreased four cents in 1935–36 over what it was in 1934–35.

The number of boys completing projects, the total number of projects completed, the number of projects completed per boy, the total labor income, and the labor income per boy enrolled in the department of vocational agriculture in the Westmoreland High School from July 1, 1931, to June 30, 1936.

In order to see under what conditions the labor income increased, it was decided to study the supervised farm practice programs of the former students enrolled in vocational agriculture according to the number of years they studied vocational agriculture and according to the class[2] of program they conducted. A similar study was also made of the boys still enrolled in school. Because of lack of space only the combined results of the two studies will be given in this article. In combining the two studies mentioned above it was found that those enrolled in vocational agriculture for one year made an average labor income of $42.90 (See Table II). This labor income increased until the boys who studied vocational agriculture four years made four times more per year from their supervised farm practice work than did those boys who completed just one year of vocational agriculture.

The total number of students who studied vocational agriculture one year, two years, three years, four years, the total labor income they made from their supervised farm practice programs, and the average labor income per boy per year when they have studied agriculture one, two, three or four years in the department of vocational agriculture in the Westmoreland High School.

In regard to the class of supervised farm practice program they conducted, the combined study shows that those who completed first-class programs made an average labor income of $120.22 per program (See Table III).

Classes of supervised farm-practice programs conducted, total number of each class completed, total labor income from each class of program, and the average labor income per program for all students of vocational agriculture in the Westmoreland High School.

Those who completed a second class supervised farm practice program made an average labor income of $41.63 per program, about one-third of what the boy made who completed a first-class program. The boys who completed only a third-class supervised farm practice program made an average labor income of just $23.29 per program, practically one half of what the boy with a second-class program made, and one fifth of what the boy with a first-class program made. The boys who just completed a fourth-class program made only $4.99 per program, which is approximately one fifth of what the boy with a third-class program made, one eighth of what the boy with a second-class program made, and one twenty-fourth of what the boy with a first-class supervised farm practice program made.

In summarizing, it seems that the longer a boy in the Westmoreland Community studied agriculture, and the more he learned about it, the more he was able to earn from his supervised farm practice program. It also shows that the boys who were really interested and mapped out for themselves a first-class supervised farm practice program made a much larger labor income than those who conducted a second-, third-, or fourth-class program.

Table I Completion and Labor Income

School Year	Number Boys Completing Projects	Number Projects Completed	Number Projects Completed Per Boy	Total Labor Income	Total Labor Income Per Boy
1931–32	30	48	1.6	$ 817.97	$27.26
1932–33	31	61	2.0	1,339.18	43.20
1933–34	26	58	2.2	2,219.00	85.35
1934–35	39	125	4.2	3,531.68	90.55
1935–36	47	158	3.3	4,254.05	90.51

Table II Number of Years and Labor Income

Number Years Vocational Agriculture Was Studied	Total Number Boys	Total Labor Income	Average Labor Income Per Boy Per Year
One Year	45	$1,950.54	$ 42.90
Two Years	29	2,153.95	51.10
Three Years	16	3,521.36	69.19
Four Years	6	4,078.37	169.95

Table III Class of Program

Class of Program Conducted	Number Completing Each Class	Total Labor Income	Average Labor Income Per Program
First class	77	$9,237.17	$120.22
Second Class	51	2,123.44	41.63
Third Class	37	861.86	23.29
Fourth Class	10	49.99	4.99

1. "The labor income on a farm is the amount the farm pays the operator for his labor and management," according to "Profitable Farm Management and Marketing," edited by Kary C. Davis, Chicago, 1929, page 3.

2. On page three of the state program of work for 1933-34 it is found that:
A first-class supervised farm practice program consists of:
1. A major cash enterprise.
2. A minor cash enterprise.
3. A contributory enterprise.
4. Participation in improvement practices on the home farm.
A second-class supervised farm practice program consists of:
1. A major cash enterprise and any two of the three as given in a first-class program.
A third-class supervised farm practice program consists of:
1. A major cash enterprise and any one of the other three as given in a first-class program.
A fourth-class supervised farm practice program consists of:
1. A major cash enterprise.

It is easier to tell our students about the motionless past that we can learn once for all than to join with them in trying to understand the moving present that must be studied afresh each morning.—Glenn Frank.

Establishing a Herd of Purebred Angus

C. L. ANGERER, State Supervision,
Stillwater, Oklahoma

VIRGIL LA RUE a Future Farmer in the Dexter High School has made definite plans to establish a herd of purebred Angus cattle, the only herd of its kind in the extreme Southeast portion of Missouri. Virgil is a junior in high school and is the present F.F.A. president.

After making a careful study of his home farm and community conditions, Virgil decided that Angus cattle would be the best type of beef cattle for his farm and community. His first decision was to buy one heifer and develop a herd from her by breeding to a purebred bull. After several letters of inquiry, Virgil located several good herds of Angus. One Saturday he took his father and teacher and visited some of the leading herds.

One breeder had three heifers that were nice and were priced right. The three were more than Virgil had originally intended to purchase, but being good individuals and priced right enthused him so much that he wanted to purchase the three and establish his herd quicker. His teacher helped promote that idea but his father objected at first saying, "The boy will soon have more cattle than I will have." The teacher, knowing that the father was also deeply interested in Angus cattle, suggested that he permit the boy to purchase the heifers, and that he himself buy a few cows or heifers and a good bull; and when the boy graduated that he and his father go partners on the good herd of Angus that they both are developing. This proposition was considered very earnestly on the return trip. Before reaching home, Virgil's father instructed the teacher to purchase the three heifers for his son.

Virgil now has the three heifers and has made an agreement with his father that they be partners upon finishing school. His father is making plans at the present to purchase a purebred bull and a few heifers or cows.

Virgil is taking the best care of his heifers and is making plans to enter them in the Mid-South Show as well as in a few local shows.

This project is the most outstanding one of its kind in all Southeast Missouri.

The Nature of the Supervised Practice Program in the Cane Areas of Hawaii

W. T. S. WONG, Teacher,
Lihue, Kauai, T. H.

THE territory of Hawaii, while occupying an important and strategic position at the Crossroads of the Pacific, is primarily agricultural in nature and largely rural in character. Its agricultural development and prosperity is vested in a two-crop economy, namely that of sugar and pineapple. The former occupies approximately 72 percent of the cultivated area, and the latter 22 percent, leaving a meager 6 percent devoted to other crops.

Unlike the enterprises of the great agricultural regions of the mainland United States, the sugar enterprise is operated and controlled, not by independent growers, but by a corporative form of management which pools its interest in a central agency for the improvement of the industry. The efficiency of this system is reflected in the high-record yields of the plantations, their efficient plan of systematic experimentation, and their general interest in promoting the welfare of the workers. Since the industry, with pineapple, occupies the larger portion of the tillable land of the Territory, including much marginal and submarginal land, there is little opportunity for independent growers to prosper as well in the industry or to enter on a large scale other farm crop enterprises. It, however, offers the greatest opportunity for gainful employment to a large majority of the young men leaving school each year, because of its position in the economic setup of the Territory, and because of its non-seasonal feature.

The inception of the Smith-Hughes program in the islands recognized the limitations imposed under such a corporative form of agricultural management, where farm boys have no opportunity of carrying the enterprise thru its complete cycle of production but can be trained to fit themselves for useful employment in those phases of the industry that are always available to them and offer them the widest opportunity for security and employment.

Under the local supervised practice program in the cane districts, the supervised practice of the pupils is limited to those field practices in which they are most likely to engage when they enter employment with the sugar cane plantations. This practice may take one of several forms, in all cases under the supervision of the vocational instructor. In some sections, the plantation turns over to the vocational class an entire field under a cultivation contract, under terms of which the group assumes full responsibility for the field during its growing period, carrying out all the field operations normally done by the plantation. At the termination of the contract the group is paid on a tonnage basis at a rate set by the contract.

In the past some plantations let out fields under a so-called "cane-purchase" contract, which provides for the purchase of all mature cane by the plantation from the group at a price based on the New York open market quotation for 96° sugar. Altho all responsibilities and all expenses are borne by the group, it has nevertheless found the practice under such an agreement profitable.

Under another form of the supervised practice, the class is given a day or piece contract for a particular job, such as planting a field, fertilizing a field, or hoeing a field, and is paid at a fixed rate on the amount of work covered that particular day. Occasionally work is assigned on a day basis, the group being paid a flat rate for the day for the work done. In all cases, the jobs engaged in are those that the average plantation boy will assume with the plantation upon entering employment.

Besides this major practice in cane, each pupil carries one or two minor projects in poultry, swine, vegetable production, or any other enterprise for which he has facilities and can assume full responsibility. These projects are necessarily limited in scope because of the limited space around most plantation homes. They have, however, helped to bring about a general improvement in home flocks, home plots and improvement in management and practices, based on scientific knowledge gained in class, where scrubs and haphazard practices have been the general rule. This work has also brought about a closer tie between the plantation and the home, and has given the farm boy a better use of his leisure time. Some boys, thru this training, have developed fine flocks and fine herds as profitable sidelines to their regular employment on the plantation, while others have utilized their training and knowledge in farming independently and are making a success.

The vocational program which started in a small way has now expanded to include practically all the larger rural schools of the Territory and, it is hoped, some day may extend to include all rural boys who desire and can profit from the program. Plantation officials who were skeptical of its value at the beginning have now given their wholehearted support, with the feeling that from this group of Future Farmers will come the intelligent workers of the future, who will help maintain the agricultural stability of the Territory.

Lorenzo, Texas, Future Farmers surveying, checking, and building terraces with the county road machinery

Ability doth hit the mark where presumption over-shooteth and diffidence falleth short.—*Cusa.*

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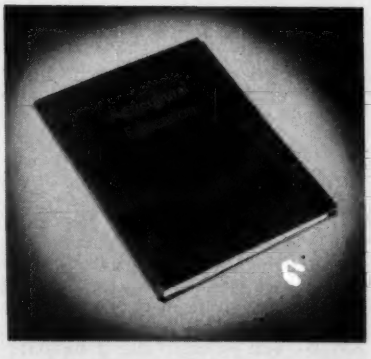

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Farmer Classes

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Factors Affecting Trends In Evening-School Work

W. G. CRANDALL, Teacher-Training, Clemson College, South Carolina

FOR 20 years teachers of vocational agriculture have taught evening classes among farmers. Thousands of farmers have enrolled in these classes. Some of the farmers who attended evening classes 20 years ago are attending evening classes today; they have been in regular attendance for 20 years. In a few instances, the same teacher has been teaching evening classes in the same community for 20 years. Teachers have sought to improve their evening-class instruction; have broadened the scope; and have endeavored to make such instruction real and genuine. Teachers have visited farmers and made an earnest effort to find their needs. They have based their instruction on the needs of farmers. Many farm practices have been improved and farmers have profited thru evening-class instruction. All of this is encouraging.

However, this does not imply that our evening-class instruction has been entirely satisfactory among farmers. There are some farmers, a small minority, who are not fully satisfied with such instruction, as it is now organized and conducted. Neither does it mean that there is not room for expansion in evening-class instruction in agriculture.

In order better to focus our attention on trends and factors affecting trends in evening classes in agriculture, and for the lack of better terms, I am dividing farmers who attend and who may attend evening classes into two groups. The first group of farmers is a *heterogeneous group*; the second is a *special group*.

In this paper, I shall devote most of my time to a discussion of the trends in evening classes among these two groups of farmers.

I. Heterogeneous Farmer Evening Classes

In the past and at the present time, it is probably safe to conclude that most of our evening classes have been, and still are, composed of farmers of all ages; of all degrees of establishment in farming; of all educational levels; farmers who own small farms and farmers who own large farms; farmers who share crop, farmers who are tenants, and farmers who are owner operators; farmers who are satisfied with their present conditions, and farmers who are not satisfied with their present conditions; farmers who aspire to higher standards of living, and farmers who feel that their present standards of living are satisfactory; farmers who ride to evening classes, and farmers who walk to evening classes. Commercial farmers and subsistence farmers attend the same classes. Truly, in terms of farmers, this is a heterogeneous group. This is the "mass method" of teaching classes.

When teachers of vocational agriculture, experienced and inexperienced, face these heterogeneous groups of farmers, they immediately find themselves among conflicting ambitions, interests, and aspirations. Twenty years ago teachers of vocational agriculture were seeking for common needs among the members of these groups. They were forced to find a common denominator in order to make the heterogeneous farmer evening class effective and successful. The common denominator, the common need, was found in production. Most farmers are interested in increased yields of staple crops. They are interested in increased rates of gain of livestock. Usually they are interested in increasing rates of production regardless of their age, training, capital, or other conditions. Increased production has been an avenue of attack for the teacher. And so it is today. Evening-class instruction for the purpose of improving production practices is commendable. It has brought the teacher into contact with the people in the community, and for many farmers it has resulted in increased incomes.

Apparent surpluses of cotton and other farm commodities, a decrease in our farm commodity exports, and falling prices have placed many farmers in a critical financial position. Quite largely, as a result of distressing economic conditions on our farms, the AAA was created and for the past few years a new denominator has appeared on the horizon—AAA activities and regional farm programs. Farmers have been eager to learn of AAA activities and regional farm programs. They have attended evening classes on regional farm programs in large numbers. The teacher of vocational agriculture has served well in the farm crisis. You are glad, I know, to serve in this capacity.

Some of our teachers have been criticized for spending so much time on production practices. This criticism does not appear to be just. It is true that there is an apparent surplus of some agricultural products at the present time. Nevertheless, the seven lean years are quite likely to return and no one has the right to deny each individual the privilege of attaining maximum efficiency in economic production. These classes should continue.

Teachers have made some attempt to teach soil and moisture conservation in evening classes. However, teaching material on soil and moisture conservation is a recent development, and for this reason evening classes on conservation practices are just beginning to make headway.

Co-operative buying and selling are receiving some attention in evening classes.

We hear much discussion on land-use programs and it does appear that we should teach land uses in our evening classes. However, facts on proper land uses are scarce and farmers hesitate to make changes in their present land-uses when such a change means a change in the present type of farming. Land-use changes on a large scale may be far-reaching.

Economic situations are receiving some attention. The cotton situation, the cattle situation, and other commodity situations are taught in evening classes.

The tariff and monetary situations are taught to a limited extent. However, farmers are usually most interested in those situations, the improvement of which is within their control.

Price changes and other economic changes make it advisable to teach some production practices year after year. Some years it pays well to feed corn to hogs; other years it pays better to sell corn on the market.

Our agricultural experiment stations are constantly furnishing us with more research information, and what appears today to be a satisfactory practice may be unsatisfactory tomorrow.

Most farmers do not object to some repetition in evening-class instruction; in fact they enjoy it.

For these and many other reasons, the heterogeneous evening class should be continued.

Where thoroly tried, the heterogeneous evening class has proven to be the most popular form of agricultural instruction in the Southern Region.

It is my forecast that increased yields and increased rates of gain of livestock shall continue as popular evening-class topics among the great majority of our farmers. It is true that we may add to our heterogeneous farmer group evening classes such topics as soil and moisture conservation, land-use programs, and economic situations. This is a needed expansion.

II. Special Group Farmer Evening Classes

In these groups we are sure to have many farmers who are interested in commercial farming on a relatively large scale; men who want farms larger than the average; men who want to educate their children; and men who want home and farm conveniences.

Who are these farmers who want larger farms, better homes, more education, and more conveniences? Who are these farmers who are not satisfied with their present farming situations? Are they former students of vocational agriculture who see possibilities in commercial farming? Are they former students who see mechanized farming as a means of lowering the cost of production and meeting foreign competition? Are they former students of vocational agriculture who peep into the future and use farming as a desirable occupation? Are they part-time students who are interested in larger farms? Are they share croppers and tenants who are interested in owning farms?

It is my guess that these special groups shall be composed of comparatively young men who are interested in commercial farming. There may be some farmers who are operating at the present

time small subsistence farms who are not satisfied, and who wish to better their conditions. Older farmers are more likely to be satisfied with their present farming conditions. Their farms may be small and their homes may be quite meager; nevertheless their day for taking chances is over. They do not wish to assume more risk and more responsibility. Their present situation is more comfortable at their age.

We should find enrolled in these special group farm evening classes many young men who have graduated from high school and who have had one or more years in college. These young men should be interested in owning and operating farms on a commercial scale. Some farmers owning large ranches and plantations may be interested in attending these classes.

Farmers should be permitted to enroll in these special evening classes regardless of their formal training. Many farmers and prospective farmers who are interested in large-scale farming may lack formal education. Substitutes for formal education may be found in native ability, frugality, courage, and vision. There does not appear to be a minimum in formal education for success in farming.

Perhaps the most common denominator among the individuals who are enrolled and who may be enrolled in special evening classes is dissatisfaction —those farmers and prospective farmers who are more or less dissatisfied with their present farming conditions.

Perhaps another common denominator among the individuals in these groups is vision. Probably these farmers possess a vision of better homes, larger farms, more conveniences, more education for their children, and more leisure time.

It is my hope that the members of these special classes become successful commercial farmers.

Those farmers who enroll in special evening classes are interested in production, but at the same time they are interested in many other phases of farming. They are interested in size of business, combinations of enterprises, more efficient use of labor, mechanization of farming, larger gross receipts. These farmers are usually interested in the use of credit. They have courage, they take chances. They, in some cases, borrow large sums of money. Many of these men own their farms. They are enterprising. Sometimes they win; sometimes they lose. Win or lose, they are an interesting group of people. They are frugal. They possess pride in work well done. Thru honest efforts, they have a right to success.

In our all-day and part-time instruction in agriculture you should discover some of these individuals. They should have an opportunity to study the lives and achievements of successful farmers. They should have an opportunity to talk with successful commercial farmers. They should study the organization of farms that give to their operators and their families more opportunities than small farms give to subsistence farmers and their families.

No doubt it will be advisable to organize these special evening classes on a community basis. In a community where several heterogeneous evening classes are held, one special evening class may be sufficient. These enterprising individuals should not mind traveling greater distances than the established and well-satisfied farmers.

Some communities are composed almost wholly of small, subsistence farmers. This is the pattern of the community. All-day and part-time students in these communities have little opportunity to study commercial farming. These are difficult situations in which to teach vocational agriculture. Under such conditions too many promising young men become discouraged, leave home, and seek employment in occupations other than farming.

Why should a competent, enterprising young man study vocational agriculture in high school, in a part-time class, become a subsistence farmer and then enroll in a heterogeneous evening class? There appears to be little hope in this situation for many individuals.

Our dense rural population in the South is a serious threat to profitable commercial farming. Forty-five percent of the rural population of the Nation live in 11 southern states. Despite our dense rural population, we must find better opportunities on the farm for a larger number of our more ambitious young men, if farming is to remain a virile occupation. These young men may gradually combine small farms and thereby depopulate some rural areas in the South. Several small farms may make a single commercial farm. However, large acreages are not required for all types of commercial farming, and in some areas more commercial farms may be established without combining acreages. The type of farming practiced should, to a large extent, determine the density of our rural population.

If we are to have more commercial farmers among our students in vocational agriculture, we must extend our evening-class instruction beyond the realm of a heterogeneous group. We must teach more than production practices. Surely we are not going to sit idly by and permit farming to degenerate further into an occupation that barely provides the necessities of life and a standard of living that is envied by few people. Enterprising students of vocational agriculture should possess more of our better lands, operate more of our commercial farms, and farming must furnish to the farmers and their families the comforts, opportunities, and privileges that many other occupations furnish to many other people. The challenge is ours—what shall we do about it?

Perhaps we shall, in the near future, establish a trend in evening-class instruction that shall make for more and better commercial farming among the more enterprising farmers. This is a real opportunity for teachers of vocational agriculture.

Evening-class instruction may well be described by the words of Cecil Rhodes: "So little done—so much to do."

These words throw down the challenge to you and me; have we the courage and training to take it up?

OUR schools may not turn out skilled bricklayers, printers, and carpenters, but the rudiments may be well presented, and without losing sight of the fact that making a living may be one thing, and building a life another thing. —Nathan Howard Gist.

Objectives of Part-Time Classes

V. A. GREEN, Teacher,
Pinckneyville, Illinois

I THINK we have previously been too narrow in regard to "part-time classes." Many teachers have stressed evening classes which are very important and essential. However, I feel that our real job is the teaching of youth. Part-time students are still youths. Another erroneous idea is that of teaching for only ten or fifteen meetings during the winter. Part-time students should be taken care of the year around.

I believe I am safe in saying that in nine communities out of ten there will be a sufficient number of students from 14 to 25 years of age for a part-time class. The 1930 census shows that there were 1,348,647 farm boys out of school in the United States. This number is 53.4 percent of all farm boys, or more than half. If agriculture teachers spend their time teaching the youth they will be rewarded for their work.

Some of the objectives of a part-time class are as follows: (1) To develop confidence of the farm boy in himself. Boys between the ages of 14 and 25 are not going to attend farmers' meetings. After they have quit school they are not, as a rule, coming back. In part-time classes the boy has a chance to express himself and tell his experiences. If self-expression is the only thing accomplished, the school has been worth while. (2) To keep the boy on the farm. Possibly 50 percent of the average group will be interested in becoming established in farming. The farm boy must be taught that conditions on the farm will be much better for him than they will be in the city. (3) To decrease farm tenancy. In 1930, 35 percent of the farms in the United States were leased; in 1935, 42 percent. If boys are helped in getting established in farming, a larger percentage of farms will be owned. (4) To establish the boy in farming. Students in high school do not know what they want to do. The agriculture teacher should not drop the student after he graduates. In fact, we should teach a boy for about eight to ten years. When good farms become available for purchase or rent, it is the duty of the teacher to place a good agriculture student upon one of these farms. I believe the time will come soon when progressive landlords will go to the agriculture teacher and ask for a boy who can manage, rent, or buy a certain farm. If we do not contact these students after they graduate, we do not know whether they are capable of farming or not. (5) To help the boy earn some money at the present time. If the class instruction increases the earning power of the individual, he will return again. Start the boy in a progressive enterprise in which he is interested. Help him to make it a paying one. (6) To provide a place to go. Today this is a very important objective. Boys are going to go somewhere. Parents are going to favor clean meetings for the boys. (7) To develop in the boy an appreciation for good recreation. Anyone of the part-time age has not passed the play stage. Recreation is very essential in carrying out a series of meetings.

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Studies and Investigations

C. S. ANDERSON

It Is Different in the South

S. L. CHESNUTT, Teacher-Training, Auburn, Alabama

A REVIEW by F. W. Lathrop in the March issue of this magazine analyzes some recent studies made by Nylin of Minnesota and Gregory of Indiana, and shows some results which would ordinarily be expected. One of these results shown is that boys who have been students of vocational agriculture for a period of three or four years are more liable to become farmers than those who have been in such classes for a period of one or two years. Gregory's study revealed that 58 percent of boys who had taken agriculture three or four years were farming while only 46 percent of those who took the subject one or two years were farming. Nylin's investigation made out even a better case for a long period in vocational agriculture. He found that "about 75 percent of four-year students were in farming or related occupations" while the number gradually decreased going down to the three-year, two-year and one-year boys. The number of boys who had taken vocational agriculture only one year and were in farming or related occupations was slightly over 50 percent.

The results in both these studies seem to be very rational and logical. Yet they are quite at variance with a similar study made by J. E. Morriss, 1934, (one time teacher at Ramer, Alabama) and other teachers of vocational agriculture in Alabama. This study by Morriss revealed just the opposite results. It showed that the boys who had studied vocational agriculture for a period of four years were less liable to become farmers than those who had studied it less than four years. Here are the results of the study—

Number of cases studied.....7,661

	Number	Percent Farming
Number of boys now farming who have had		
One semester of vocational agriculture	445	5.78
One year of vocational agriculture	1,182	15.42
Two years of vocational agriculture	1,056	13.78
Three years of vocational agriculture	694	9.05
Four years of vocational agriculture	599	7.81
Total	3,976	51.87
Percent of boys with two years or less of vocational agriculture who are farming		34.98
Percent of boys with three or four years of vocational agriculture who are farming		16.86

The interesting question about these two studies is why the difference; and an explanation of the difference gives rise to a still more interesting problem confronting vocational agriculture in the South. But first we will consider the explanation. The difference in the two studies, of course, has only one explanation and that is the difference in the rate of tenancy. Alabama has 63 percent of her farm people as tenants, South Carolina has 61 percent, Georgia 65 percent, Mississippi 70 percent. On the other hand, Minnesota has 33 percent of tenants and Indiana has 31 percent.* The boy from the tenant home does not stay in the high school as long as the boy from the landholder's home. Too often the share cropper's son is eliminated at the end of the first year or the second year for economic reasons; he must help the family make a living. More of the landowners' boys go on thru the high school. More of them go on thru college or out into business. Less of them go into farming. Most certainly, of those who go to college, even the agricultural college, an extremely small number go back to the farm. (It is unfortunate that the agricultural colleges have not made a survey on this question or we would have the figures to present.)

So in the South a larger proportion of the share cropper's children go out of the high school before finishing and go into farming. (They are not prepared for many other jobs.) Probably, this is why more of our boys from the landowning class finish the high school and go on to something else (college or more highly skilled vocations).

Now the question this raises, for the people interested in vocational agriculture, is this—"Should the problem of high tenancy in the South affect in any way the course of study offered departments of vocational agriculture?" Particularly in communities with a high rate of tenancy should the course be differentiated from the traditional to the extent that it will meet more adequately the needs of the tenant class? (Yes, I hear a chorus yelling there is no "traditional course.") To be sure, surveys are made and each teacher builds his course on the "needs of his community." But are not the needs of the community interpreted in terms of the landowners' needs, and are not the courses traditional at least to the extent that they are built around the needs of the landowner?

The question raised may not really be a pertinent one. Certainly it is not if we are content to pursue our policy of dealing with the problem of tenancy as one of no social or economic importance. Yet, on the other hand, if we are to try to make vocationally fit those who are going into particular vocations, then it appears that this topic is one that may deserve consideration on the part of vocational educators.

With this in mind we are making a study of the problem in Alabama. Seven candidates for masters' degrees are working on the subject—to determine whether the course in vocational agriculture should be modified to meet better the needs of students from both landlord and tenant homes.

*United States Census—1935.

The Evaluation of Outcomes in Agricultural Education: Some Problems Which Merit Special Study

G. P. DEYOE, Teacher-Training, East Lansing, Michigan

G. P. Deyoe

1. Improved techniques for the formulation and refinement of objectives in terms most meaningful for the development of tests and other procedures for evaluation.
2. The construction of tests and other devices for vocational agriculture which are adapted for rapid diagnosis of pupil difficulties.
3. Procedures for the effective use of tests and test results for pupil guidance and the individualization of instruction.
4. The interrelationships of types of behavior and the likelihood of various types to occur together.
5. The development of convenient systems of evaluation sufficiently comprehensive for the various outcomes of instruction.
6. The identification and measurement of aspects of behavior which are relatively permanent.
7. The development of acceptably valid criterion tests for the validation of measurement instruments.
8. The building of tests which will differentiate between overlapping traits without seriously decreasing their validity.
9. The development of pencil-and-paper responses which correlate highly with the final stage of application.
10. The development of new-type tests which correlate highly with problem-essay types of tests.
11. The determination of content for

tests useful over wide geographic areas.

12. The construction of test items in which various visual aids are utilized.
13. Comparative ratings, on achievement tests, of farmers with varying degrees of occupational success. (Such a study would be helpful in validating tests of achievement, and in addition, this is a suggested approach to the development of aptitude tests.)
14. The value of pencil-and-paper tests as indicators of aptitude for farming.

Many Classroom Teachers Are Found to be Conducting Studies

C. S. ANDERSON, Teacher-Training, State College, Pennsylvania

C. S. Anderson

RECENTLY a communication was directed to state supervisors and teacher-trainers making inquiry concerning the extent and the nature of research carried on by classroom teachers within their states. They were asked to indicate the names of teachers, their locations, and the subjects of research studies which were known to have been recently completed or to be in process.

The purpose in making the request was to locate desirable copy material for the "Studies and Investigation" section of *The Agricultural Education Magazine*. It is planned from time to time to write to the teachers whose names and subjects of research have been indicated, and to request them to report their studies and findings for publication. Thus, it may be possible to keep up a flow of practical research reports coming from the teachers of agriculture as well as from the special research workers.

Space will not permit the printing of the entire number. The following are 50 drawn at random from the list of the submitted topics.

1. "New ways and means of extending vocational agriculture beyond the all-day classes. The result of five years of trial in———community."
2. "A re-study of vocational agriculture course organization with particular reference to the cross-sectional principle."
3. "The use of general farm surveys as basis of course organization in vocational agriculture."
4. "The use of economic agricultural information in planning long-time supervised practice programs."
5. "An age and occupational group study of rural people with particular reference to the opportunities for placement and establishment in farming for graduates in vocational agriculture. Study restricted to five high schools in———County."
6. "A co-operative swine breeding project as a means and stimulus in the teaching of vocational agriculture."
7. "The measured results of ten years of supervised farm practice in a community."
8. "Planning farm improvement projects and supplementary farm practices for boys residing on subsistence farms. Case studies."
9. "An experiment in guidance for pupils who elect the vocational courses in high school."
10. "A rating scale designed and used to evaluate vocational agriculture projects."
11. "Ways and means of adapting the results of a community survey on potato production to the teaching of the potential potato growers who enroll in the agricultural classes of———High School."
12. "A plan book for use in teaching soil conservation."
13. "Analysis of the job skills taught, and the degree of skill efficiency acquired by boys enrolled in agricultural classes. Data available for eight years."
14. "Planning and carrying out a long-time program of work in vocational agriculture for ——— community. Results recorded."
15. "Certain measurable effects of vocational agriculture on the occupational trends of the inhabitants of the——— area."
16. "Correlating an F. F. A. activity program with a program of work in vocational agriculture."
17. "A detailed vocational survey of the ——— community. (An area embracing two townships with a town of approximately 1,500 population, the patronage center and the location of a consolidated high school.) This is a direct and scientific attempt to reveal the relative importance of agriculture among the vocational pursuits of the community."
18. "An original plan book designed for use in teaching farm management with the results of a three-year trial recorded."
19. "A study to determine the factors which seem to be important in the scholastic success of vocational agriculture pupils in the———High School."
20. "The occupational status of 138 former vocational agriculture pupils."
21. "Results and recommendations after a two-year trial in teaching adult agricultural evening classes during the summer months in ———community."
22. "Adjusting vocational agriculture instruction to a newly organized 6-3-3 plan of school organization."
23. "The discovery of functional content for a curriculum pattern in vocational agriculture in the———area."
24. "Results, comparisons, and conclusions after a five-year trial of the cross-sectional method of teaching vocational agriculture."
25. "A comparative study of the vocational agriculture pupils and of the non-vocational pupils in————High School. A total of 350 cases."
26. "Factors that influence extra-curricular pupil participation in a selected group of typical rural community high schools."
27. "An occupational follow-up study of former all-day pupils in a long established school."
28. "What is new in farm shop teaching procedure? (A survey conducted among 400 selected farm shop teachers thruout the United States.)"
29. "An experiment in an attempt to find a solution to the problems and difficulties associated with the town boy who enrolls for vocational agriculture."
30. "Adapting the teaching of vocational agriculture to boys who will in all probability never become more than part-time farmers. A proposed set-up based upon an analysis of the group needs."
31. "An area survey to determine exactly what opportunities exist or may likely exist for the placement of vocational agriculture graduates in farming occupations."
32. "A co-operative experiment in coordinating instruction between vocational agriculture and home economics."
33. "An analysis of a stenographic record of ten evening-class lessons dealing with the dairy enterprise. A case study."
34. "A class project in vocational agriculture, results, conclusions, and recommendations after seven years of trial."
35. "A search for fundamental factors which contribute to the success of contestants in a judging contest. Based on the background, preparation, and the analysis of the records of contest winners."
36. "A comparative study of the scholastic and vocational performances of agricultural and academic pupils."
37. "Attitude tests for former agricultural pupils."
38. "Experimental use of various tests for measuring achievement in vocational agriculture, with a view to preparing a new test."
39. "The extent of, and probable reasons for, the migration of boys who have studied vocational agriculture in——— High School area."
40. "A survey conducted by a class in vocational agriculture to determine the amount and kind of farm machinery in the community and to study the factors affecting its depreciation."
41. "An attempt to determine and to measure the farm skill acquired in agriculture classes."
42. "A survey to determine changes in farm practices resulting from instruction in vocational agriculture."
43. "An analysis of 1,000 questions asked by boys enrolled in vocational agriculture. Do these questions indicate a felt need for certain types of help and information?"
44. "If we were to do it again would we become teachers of vocational agriculture? A compilation and interpretation of the candid replies of approximately 100 teachers, all of whom have passed the 10-year mark in years of service."
45. "Planning and executing a program of supervision and follow-up for part-time students in agriculture."
46. "An educational and economic survey of the agricultural resources and possibilities of———County."
47. "Developing a course of study in poultry in vocational agriculture in the ———High School."
48. "Some difficulties encountered in conducting supervised farm-practice work with suggested remedies for the difficulties."
49. "What are the criteria determining a pupil's interest in becoming a farmer?"

(Continued on page 118)

Future Farmers of America

The Eleventh National Convention of Future Farmers of America

L. R. HUMPHERYS, Logan, Utah

NEW NATIONAL OFFICERS, FUTURE FARMERS OF AMERICA, 1938, left to right: Elmer Johnson, 4th Vice-President, Winchester, New Hampshire; Albert Coates, 3rd Vice-President, Kansas City, Kansas; Robert A. Elwell, President, Gorham, Maine; Bradley Twitty, 2nd Vice-President, Allsboro, Alabama; Harvey Sweitzer, Student Secretary, Malta, Illinois; Stevenson Ching, 1st Vice-President, Hawaii (Not in picture); and W. A. Ross, Executive Secretary and J. A. Linke, National Adviser, Washington, D. C., standing.

National Judging Contest Winners

Placings	*Poultry*	*Meat*	*Dairy*	*Livestock*
First	Illinois	Missouri	Idaho	California
Second	California	Illinois	Pennsylvania	Arizona
Third	Kansas	Colorado	Kansas	Oklahoma
Fourth	Nebraska	Minnesota	Oklahoma	Minnesota
Fifth	Arkansas	Wisconsin	Ohio	Illinois

Legislative Enactments

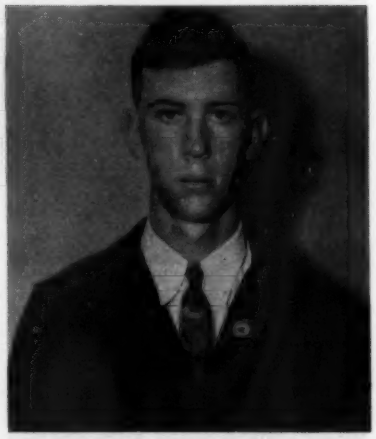
1. The American Farmer applications are due in the Washington office on or before May 1, 1939.
2. The national officers voted to set aside $6,000 to start a national F. F. A. Camp near Washington, D. C.
3. A trade mark and the name of the F.F.A. organization and a patent on the design of the F.F.A. emblem are to be secured.
4. Contract for specially designed F.F. A. dinnerware is to be continued.
5. The membership goal has been set for 200,000 for the year 1939.
6. A training school for newly elected national officers is to be provided.
7. Entries for the 1939 chapter contest should have been sent to the Washington office by December 5, 1938. (Note: All reports are to use the standardized scrapbook.)
8. The annual F.F.A. exhibit at the convention will be continued.
9. The entire convention for 1939 will be held in Exhibition Hall of the Municipal Auditorium in Kansas City.
10. The annual budget for 1938–1939 is approximately $19,000.
11. A program of co-operation with Future Farmer organizations in foreign countries will be promoted.
12. A provision is being made for F.F.A. participation in the World's Poultry Congress.
13. Participation certificates will be awarded the past national officers, public speakers, state association, and chapter contest winners.
14. Objectives of the F. F. A. organization will be blocked out and put on sale for individual chapters.
15. Further killing of owls as specimen for chapter ceremonies is discouraged and provision should be made for artificial owls.
16. The F.F.A. organization is to participate in National Education Week.
17. National dues will remain at 10c per member for the year.

Star American Farmer

WHEN Hunter Roy Greenlaw, Falmouth, Va., was 15 years of age, his father died, leaving a widow, a freshman son in high school, and a 435-acre farm.

Hunter took up where Dad left off, and today this 20-year old youth has increased by many times the value of farm income enjoyed by his parents.

As a result of managing the farm during the last five years, young Greenlaw now owns 23 purebred swine, 15 Holstein cattle, and several head of work stock. For the last year, he has hired two men full-time for additional work.



Hunter Roy Greenlaw

When he took over management of the farm with the permission of his Uncle Norris, the annual cash income was only $115. But Hunter Greenlaw was studying vocational agriculture at high school, and learning efficient farming. The next year, income jumped to $275, then to $400, and $730. Last year—first year out of high school for Hunter, when he could devote full time to his work, the farm brought in a net income of $3,200.

The value of livestock and unsold crops, plus some machinery he inherited with the place but not including the value of the land itself, is $5,300, most of which represents assets built up by this youngster in his vocational agriculture projects.

While the farm took much of his time, Hunter was an all-around American boy, too. He helped put on a local F. F. A. egg and grain show. He was an all-around athlete in high school, president of his chapter, manager of his school paper, and an honor student.

He plans to develop this farm, and to buy it from his uncle or get another piece of good land in the township. He has applied for a certificate to sell "Grade A" milk. His mother is moving to the city, and Hunter will take over the poultry, which will further increase his income.

American Farmers—1938

Alabama
Pete Turnham, Abanda
Ernest Schoeder, Elberta
Bradley Twitty, Allsboro
Arizona
Kenneth Julian, Mesa
Arkansas
Garland Daniel, Camden
Erbel Lemons, Sparkman
Jack Seay, Calico Rock
California
Verne Hoffman, Jr., Acampo
John Giocomini, Ferndale
Ray Higginbotham, Modesto
Forest Boerner, El Cajon
Russell Donogh, Petaluma
Wayne Foster, Santa Rosa
Richard Gray, Santa Rosa
Connecticut
John H. Landon, Guilford
Florida
Earl Faircloth, Chiefland
Georgia
Jack Durden, Jr., Swainsboro
Maurice Parks, Decatur
Hawaii
Stevenson Ching, Waimea
Illinois
Everett K. Thompson, Sesser
John Gehlbach, Beason
Warren Friedrichs, Dixon
Iowa
Alfred Sump, Clarinda
Kansas
Albert S. Coates, Jr., Kansas City
Leonard Deets, South Haven
John Weir, Arkansas City
Kentucky
Elmer Smith, Lexington
Robert C. Davis, Lexington
Samuel Sauer, Owensboro
John Bottorff, Goshen
Louisiana
F. P. Bordelon, Jr., Cottonport
Clyde Savoy, Sunset
Maine
Robert A. Elwell, Gorham
Maryland
Ray E. Valentine, Rocky Ridge
Massachusetts
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State Association Awards

Outstanding Association of the United States—Wyoming
Second Placing—Texas
Third Placing—Louisiana
Fourth Placing—Utah
Fifth Placing—Virginia.

State Chapter Contest

Outstanding Chapter of the United States—South Hill Chapter of South Hill, Va.
Winner of North Atlantic Region—Holland Patent Chapter of Holland Patent, New York
Winner of North Central Region—Sargent Chapter of Sargent, Nebraska
Winner of Western Region—Chester Chapter of Chester, Montana.

Public Speaking Contest

Winner—Leslie H. Standlea, Ontario, California
Subject—"Chemurgy as an Aid to the American Farmer."
Second—Arthur Olson, Austin, Minnesota
Subject—"Conservation of Soil, Our Greatest National Problem."
Third—Glenn Curlee, Deatsville, Alabama
Subject—"Farm Tenancy in the South."
Fourth—Raziel Abelson, Woodbine, New Jersey
Subject—"The Problem of Soil Erosion."
Fifth—Frederick Tom, Lahaina, Maui, Hawaii
Subject—"Leadership in Agriculture."

Chemurgy as an Aid to the American Farmer

Winning speech for the 1938 National F. F. A. Public Speaking Contest

LESLIE STANDLEA, Ontario, Calif.

"TO MAKE two blades of grass and two ears of corn grow where one has grown before," has been the grand objective of the American farmer. Thru industry, thru enterprise, thru experimentation he has built an agricultural plant worth fifty-five billions of dollars. This he did under the encouragement of a strong export market. He could depend upon the foreign demand to absorb all that he could raise in excess of domestic consumption.

My grandfather, as yours, could look out over his fields of wheat, cotton, and corn with a thrill and pride of possession and accomplishment and he stood secure in the knowledge that every bushel of grain harvested, every boll of cotton picked, had a ready market here and abroad.

Leslie Standlea

But this great foreign market is lost, and as the farmer of today looks out over his fertile fields of ripening grain, as he sees his cotton, white and glistening, standing out upon the landscape, the thrill and pride of possession and accomplishment are not written upon his countenance. Instead, with furrowed brow and troubled face he ponders upon his problem—trying to find some way in which he can get rid of his surplus grain, some place to put his surplus cotton, some profitable use for his land.

"Is there no way out," he asks, "except to resort to regimentation and government assistance"?

My friends, science and industry are saying that there is another way out. Sponsored by the Farm Chemurgic Council plans have been developed to make agriculture and science and industry the joint partners in a great enterprise, that will take the products of the soil and thru chemistry transform them into raw materials for industry.

To this plan of action there has been given a name, coined to describe its function. From the Egyptian word "Chemi" and the Greek word "Ergon,"

meaning work, was coined "Chemurgy," which means putting chemistry to work for the farmer and for society. As Henry Ford has said, "Industry and agriculture are natural partners. Agriculture suffers from a lack of employment for its surplus men. Bringing them together heals the ailments of both."

Henry Ford speaks with authority for he has been a pioneer in the development of the soy bean, that miracle bean, once used only for food, which is now being processed for its plastic use in the electric and automobile field. The distribution bases and plug of that electric light switch over there, the panels on your dash board, your timing gears—all are made from this product. Moreover, 15,000,000 pounds of soy bean oil were used last year in paint, varnish, and linoleum. From two to three million acres are now devoted to this crop, and Dr. Burlison of the University of Illinois predicts that within 20 years it may equal the annual corn crop.

Turn now to the South. Here chemurgy has found a use for the vast areas of fast-growing southern pine. We were importing three-quarters of our paper pulp because Georgia pine was thought to be too yellow and too resinous for use. But the late Dr. Charles H. Herty spent five years in his laboratory and $350,000 in investigation, and now a new, half-billion dollar industry is springing up in the South, bringing into productive use thousands of acres of marginal land and promising employment to tens of thousands of workmen.

I have spoken of new uses for new crops. Let us now take new uses for old crops. Take cotton for example. As Mr. Howard E. Coffin, late Chairman of the Board of Southeastern Cotton Incorporated has said: "A few years ago some pessimist proposed, as the only means of increasing the consumption of cotton, that every Chinaman in China be induced to add an inch to his shirttail. Perhaps the idea was fantastic, but no more so than to convince hard-headed engineers that cotton makes good roads." But in test projects thruout the nation investigation of "cotton roads" has shown that the coarse, inexpensive cotton fabric membrane offers a base for the successive application of asphalt and stone screenings that resists the upward heaving of frost and eliminates cost of maintenance, and they offer a potential market for from five to six million bales of cotton.

Let us take another example of a new use for an old crop—sugar cane. After the cane has been crushed at the mill, there is left a fibrous product known as bagasse. Until a few years ago this was burned as a makeshift fuel, not because it was good fuel, for it was not, but because it had to be disposed of.

Then entered the chemist. Today we find this once worthless bagasse used as purifying agent for water, as an eliminator of poison from gases, and as insulation; the cellotex industry alone uses 10,000 carloads annually and represents an investment of $5,000,000.

One other example: agrol or power alcohol from grains. At Atchison, Kansas, there is a plant now operating, with a capacity of 4,000 bushels per day and 30,000 acres annually. It is estimated that a 10 percent blend of agrol in all the gasoline in use in the United States would take 30,000,000 acres out of the competitive food market. One could go on indefinitely with similar examples.

I do not want to be misunderstood. I am not suggesting that chemurgy is a short cut to prosperity. Certainly there are some criticisms that occur. Do not these investigations cost money? Yes, the report of the Chemical Foundation shows expenditures of $860,000 but on the other side of the slate we have $150,000,000 invested in new chemurgic projects and forty million acres devoted to chemurgic uses. Consider, too, that every investment in an industrial plant, every increased demand for agricultural machinery, every service of transportation affords a stimulus to the whole fabric of industry.

Again you may ask, "Does not the cultivation of new crops involve risk to the farmer?" The farmer must be protected against such risk. Scattered thruout the Union there are government owned and supported experimental stations. Let them be the preliminary testing grounds, and let the government subsidize the farmers for developing these experimental crops. As Mr. Wheeler McMillen, editor of the *Country Home* magazine says: "Farmers might thus be assured of sufficient income, and manufacturers could obtain raw materials at a figure low enough to allow for processing costs." Surely these are minor objections as compared with the opportunities for enterprise and initiative that chemurgy opens for the farmer.

Fellow Future Farmers, we are experiencing one stage of an industrial revolution that goes on from generation to generation. Our parents and grandparents lived in the stage where men conquered in the realm of metallurgy. Iron, copper, zinc, and their alloys became their tools of progress. We shall see another stage where men will take from the soil the rich yield of Nature's harvest and thru the magic power of chemistry create goods yet undreamed of for the enjoyment of mankind. Thus agriculture, industry, and science welded together into a single tremendous force will give profitable work to idle acres, will restore the purchasing power of the American farmer, will increase his demands for the products of the factories, and give work to millions of idle hands, thus elevating the whole standard of living of the nation and offering to our generation the same opportunity for initiative and enterprise that the development of machinery and electricity afforded to the generations past.

My friends, as I survey the broadened frontier, as I look out upon the vast fields where work is to be done, limited only by man's foresight and initiative, I am inspired with an unconquerable faith in America, and with all my heart I affirm the words of the Future Farmer Creed: "I believe in the future of farming—in the promise of better days, thru better ways—I believe that rural America can and will hold true to the best traditions in our national life."

Objectives of Part-Time Classes

(Continued from page 113)

In order to develop these objectives, a teacher must do the following:

1. Make a community survey to determine number of students available.
2. Visit personally all boys in the community.
3. Find out the interests, plans, and wishes of these boys and record them.
4. Plan the meetings when the boys can best attend.
5. Carry out the meetings in an informal manner. Boys of this age do not like formality. Do not call the meetings a class. They do not, as a rule, like anything similar to school.
6. Make friends with the boys.
7. Have plenty of recreation.
8. Treat the fellows as men, not as boys.
9. Work out individual programs.

If some of the meetings do not go as we think they should, we may still be doing an excellent job of teaching. Helping the individuals to think is our main aim. Informality, individual plans and discussions of them, cause thinking.

Part-time students have problems the year around. We have assumed that all problems can be answered in from ten to fifteen meetings during the winter. The meetings should come every month.

Personally, I believe the group should be organized so it can function as a unit. The organization should have a name, such as Vocational Farmers. If they decide to buy hybrid seed corn, they can do so as an organization. Special meetings can be called and a series of meetings can be held on different subjects. Most of this should come from the boys; then they feel the meetings belong to them.

Cyril George Hopkins

(Continued from page 105)

(7) Slagle, Robert L. Cyril George Hopkins—In Memorium. Urbana: University of Illinois Press, 1922, p. 77.

(8) Bouyoucos, George. "The Culminating Year in the Life of Doctor Hopkins." Cyril George Hopkins—In Memorium. Urbana: University of Illinois Press, 1922, p. 40.

(9) Davenport, Eugene. "Doctor Hopkins, The Man." Cyril George Hopkins—In Memorium. Urbana: University of Illinois Press, 1922, p. 65.

(10) Bayard, E. S. Cyril George Hopkins—In Memorium. Urbana: University of Illinois Press, 1922, p. 85.

(11) Kinley, David. "Doctor Hopkins, the Public Servant." Cyril George Hopkins—In Memorium. Urbana: University of Illinois Press, 1922, p. 42.

(12) Stewart, Robert. "The Scientific Basis of the Illinois System of Permanent Soil Fertility." Cyril George Hopkins—In Memorium. Urbana: University of Illinois Press, 1922, p. 24.

(13) Hopkins, Cyril George. "Soil Fertility." University of Illinois Agricultural Experiment Station Circular No. 157. Urbana: University of Illinois, March, 1912.

Many Teachers Are Conducting Studies

(Continued from page 115)

50. "The mental ability of the pupil—an important factor in determining both method and content in the teaching of vocational agriculture."

Editor's Note:—
The special editor of the "Studies and Investigations" section of the magazine solicits the cooperation of all state supervisors and teacher-trainers in reporting research studies completed or in process from within their states. Those who have not replied to his communication should do so at once. It is evident that there are numerous and significant studies, the results of which should be made available to all workers in agricultural education.

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